**Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A device for thermally insulating at least one undersea pipe, the device comprising:

a thermally insulating covering surrounding said pipe;

said covering itself being covered by an outer leakproof protective case, and said case being made of a flexible or semirigid material suitable for remaining in contact with the outside surface of said insulating covering when it deforms,

~~the device being characterized in that:~~

wherein said insulating covering comprises a phase-change material confined in at least one container made of a flexible or semirigid material that is deformable; and

said container ~~being~~ is disposed around said pipe.

2. (currently amended) [[An]] The insulating device ~~according to~~ of claim 1, ~~characterized in that~~ wherein in a cross-section of said pipe, level with said container, said pipe is surrounded by said container in a substantially continuous manner.

3. (currently amended) [[An]] The insulating device ~~according to~~ of claim 1, ~~characterized in that~~ wherein said container is placed close to the pipe ~~in such a manner~~ so that said pipe does not come directly into contact with said container.

4. (currently amended) [[A]] The insulating device ~~according to~~ of claim 3, ~~characterized in that~~ wherein said container comprises a plurality of containers ~~which~~ that are disposed against spacers, said spacers being disposed against and around said pipe in such a manner as to leave a gap between said containers and said pipe.

5. (currently amended) [[A]] The insulating device ~~according to~~ of claim 4, ~~characterized in that~~ wherein said containers are spaced apart from said pipe by a distance of from approximately 5 mm to approximately 10 cm~~, and preferably by a distance of 1 cm to 5 cm~~.

6. (currently amended) [[An]] The insulating device ~~according to any preceding~~ of claim 1, ~~characterized in that~~ wherein said pipe is surrounded by a second insulating material that is solid, ~~being~~ and is applied against said pipe[[,]]; and

wherein said container ~~being~~ is pressed against said solid insulating material surrounding said pipe.

7. (currently amended) [[A]] The insulating device ~~according to~~ of claim 1, ~~characterized in that~~ wherein said insulating covering ~~covered in a said leakproof protective case~~ comprises a main insulating material and ~~said container of~~ a phase-change material surrounding said pipe.

8. (currently amended) [[An]] The insulating device ~~according to~~ of claim 7, ~~characterized in that~~ wherein said main insulating material surrounds said pipe and provides separation between said pipe and said container in the gap between said container and said pipe.

9. (currently amended) [[An]] The insulating device ~~according to~~ of claim 1,

wherein said pipe comprises a plurality of pipes; ~~and~~

wherein said container comprises a plurality of containers ~~characterized in that in~~; and

wherein, around the portions of ~~the~~ each pipe~~(s) surrounded by~~ about which said containers are disposed, the insulating device has at least two ~~and preferably three or four~~ containers in a ~~said~~ cross-section of said pipe~~(s)~~ surrounded by said containers~~, and also preferably surrounding said pipe(s) in a manner that is substantially continuous~~.

10. (currently amended) [[An]] The insulating device ~~according to~~ of claim 1, ~~characterized in that~~ wherein said phase-change material presents a liquid/solid melting temperature ~~that preferably lies in the range 20°C to 80°C~~, that is lower than the temperature of the fluid flowing in said pipe when it is in operation, and higher than the temperature at which the fluid flowing inside the pipe ~~present~~ presents an increase in viscosity that is harmful for its ability to flow in said pipe.

11. (currently amended) [[A]] The insulating device ~~according to~~ of claim 10, ~~characterized in that~~ wherein said insulating phase-change material comprises chemical compounds of the alkane family~~, preferably a paraffin having a hydrocarbon chain with at least 14 carbon atoms~~.

12. (currently amended) [[A]] The insulating device ~~according to~~ of claim 11, ~~characterized in that~~ wherein said ~~paraffin~~ alkane is heptacosane of formula $C_{17}H_{36}$ presenting a melting temperature of about 50°C.

13. (currently amended) [[A]] The insulating device ~~according to~~ of claim [[1]] 7, ~~characterized in that~~ wherein said main insulating material is ~~constituted by~~ an insulating mixture comprising a first compound consisting ~~in~~ of a hydrocarbon compound ~~such as paraffin or gas oil~~, mixed with a second compound consisting ~~in~~ of at least one of a gelling compound and/~~or~~ a structuring effect compound~~, in particular by means of cross-linking, such as a second compound of the polyurethane type, of the cross-linked polypropylene type, of the cross linked polyethylene type, or of the silicone type, and preferably said first compound is in the form of particles or microcapsules dispersed within a matrix of said second compound~~.

14. (currently amended) [[A]] The insulating device ~~according to~~ of claim 13, ~~characterized in that~~ wherein said first compound is selected from ~~alkanes such as~~ the group

consisting of paraffins, waxes, bitumens, tars, fatty alcohols, and glycols~~, said first compound preferably being a phase change compound~~.

15. (currently amended) [[A]] The insulating device ~~for thermally insulating at least one undersea pipe according to~~ of claim 1, ~~the device being characterized in that it includes~~ further comprising at least two leaktight transverse partitions, each of said partitions being ~~constituted~~ formed by a closed rigid structure having said pipe passing therethrough, and secured to said pipe and to said case, and said container being disposed around said pipe between said two transverse partitions.

16. (currently amended) [[A]] The insulating device ~~according to~~ of claim 15, ~~characterized in that~~ wherein said transverse partitions are spaced apart~~, preferably at regular intervals,~~ along ~~said~~ a longitudinal axis of said case by a distance of from about 50 m to about 200 m.

17. (currently amended) [[A]] The insulating device ~~according to~~ of claim 15, ~~characterized in that it includes~~ further comprising at least ~~one~~ two centralizing ~~template, preferably a plurality of centralizing~~ templates[[,]] located~~, preferably at regular intervals,~~ between said two successive leaktight transverse partitions along ~~said~~ a longitudinal axis of said case, each said centralizing template being ~~constituted~~ formed by a rigid part secured to said pipe~~(s)~~ and presenting a shape ~~which~~ that allows limited displacement of said case in

contraction and in expansion in register with said centralizing template, said ~~containers~~ container being disposed between two successive ones of said centralizing templates~~, where appropriate~~.

18. (currently amended) [[A]] The insulating device ~~according to~~ of claim 17, ~~characterized in that~~ wherein said centralizing template is ~~constituted~~ formed by a rigid part, ~~preferably having a cylindrical outside surface with a cross section whose perimeter is set back relative to that of said leaktight partition,~~ the centralizing template limiting deformation of said case by the case coming into mechanical abutment against said rigid part at at least two opposite points of the perimeter of the cross-section of said case, said displacement of the case being in register with ~~a~~ said centralizing template representing variation of 0.1% to 10%~~, and preferably of 0.1% to 5%,~~ of the distance between two opposite points of the perimeter of the cross-section of said case.

19. (currently amended) [[A]] The insulating device ~~according to~~ of claim 17, ~~characterized in that~~ wherein the positioning of said rigid piece ~~constituting said centralizing template presents a portion of its outside surface that is set back sufficiently relative to the surface of the case, and/or presents perorations passing through it, so as to create~~ that creates a space allowing the material constituting said insulating covering to be transferred through said centralizing template.

20. (currently amended) [[A]] The insulating device ~~according to~~ of claim 16, ~~characterized in that it has~~ further comprising a plurality of said centralizing templates, and wherein two successive centralizing templates are spaced apart along said longitudinal axis of the case by a distance of from about 2 m to about 5 m, with said containers being interposed between two successive ones of said plurality of centralizing templates.

21. (currently amended) [[A]] The insulating device ~~according to~~ of claim~~s~~ 16, ~~characterized in that it has~~ further comprising at least one~~, and preferably a plurality of~~ shaping ~~templates~~ template, each ~~constituted~~ said shaping template formed by a rigid structure secured to said pipe~~(s)~~ with ~~the~~ said pipe~~(s)~~ passing therethrough, and secured at its periphery to said case, ~~the~~ said shaping template~~(s)~~ being disposed between two successive ones of said leaktight partitions, said shaping template having openings allowing ~~the material constituting~~ said main insulating material to pass ~~through said shaping template~~ therethrough.

22. (currently amended) [[A]] The insulating device ~~according to~~ of claim 21, ~~characterized in that~~ wherein said open structure of said shaping template is ~~constituted~~ formed by a cylindrical part presenting a cross-section of perimeter that is inscribed in a geometrical figure identical to the geometrical figure defined by the shape of the perimeter of the cross-section of said leaktight partition.

23. (currently amended) [[A]] The insulating device ~~according to~~ of claim 21, ~~characterized in that it has~~ wherein said at least one shaping template is a plurality of shaping templates disposed along said longitudinal axis of the case, ~~preferably at regular intervals,~~ two successive shaping templates being ~~preferably~~ spaced apart by from about 20 m to about 50 m.

24. (currently amended) [[A]] The insulating device ~~according to~~ of claim 1, ~~characterized in that~~ wherein said case defines a perimeter presenting two axes of symmetry that are perpendicular to each other and to said longitudinal axis.

25. (currently amended) [[A]] The insulating device ~~according to~~ of claim 24, ~~characterized in that~~ wherein said cross-section of the case is circular ~~in shape~~.

26. (currently amended) [[A]] The insulating device ~~according to~~ of claim 24, ~~characterized in that~~ wherein said cross-section of the case is oval ~~in shape~~.

27. (currently amended) [[A]] The insulating device ~~according to~~ of claim 24, ~~characterized in that wherein~~ said cross-section of the case is rectangular ~~in shape, preferably with rounded corners~~.

28. (currently amended) [[A]] The insulating device ~~for thermally insulating a bundle of undersea pipes, the device being characterized in that it comprises a device according to~~ of claim 1 having at least two of said undersea pipes disposed in parallel.

29. (currently amended) [[A]] The insulating device ~~according to~~ of claim 21, ~~characterized in that~~ wherein said leaktight partitions~~, said centralizing templates,~~ and said shaping templates hold at least two of said undersea pipes at a fixed distance apart.

30. (currently amended) A unit thermally insulating device suitable for building a device according to claim 1 by assembling said unit thermally insulating devices end to end, wherein the pipe is formed of at least one unit pipe element, the unit device ~~being characterized in that it comprises~~ comprising:

~~one or more unit undersea pipe elements replacing the undersea pipe(s); and~~

an insulating covering[[,]];

[[a]] said protective case[[,]]; and

[[a]] said insulating covering, ~~comprising~~ said insulating covering having at least one said container containing [[a]] said insulating phase-change material ~~as defined in claims 1 to 14,~~;

wherein each said unit element ~~having~~ has said leaktight partition at at least one of its ends ~~or at both ends, a said leaktight partition, and preferably said centralizing templates and~~

~~also preferably shaping templates as defined in claims 15 to 29 disposed between two successive leaktight partitions~~.

31. (currently amended) A method of assembling a unit device according to claim 30, ~~characterized in that it~~ wherein the method comprises the following steps:

a) ~~where appropriate,~~ positioning said unit pipe element~~(s)~~ relative to said leaktight transverse partitions~~, said centralizing templates, and said shaping templates~~, then

b) installing ~~said spacers~~ on said unit pipe ~~elements~~ element, ~~or installing a~~ one of spacers and said solid insulating material ~~(3~~2~~)~~ against ~~the~~ a wall of said unit pipe element; ~~and~~

c) pressing said ~~containers containing a said insulating phase change material~~ container against said spacers or against [[a]] said solid insulating material, forming thereby an assembly; ~~and~~

d) inserting ~~the~~ said assembly ~~as obtained in step c)~~ in [[a]] said outer case; and

e) ~~where appropriate,~~ injecting [[a]] said main insulating material into the space between said ~~containers~~ container and ~~the~~ said outer case, and ~~where appropriate~~ into the space between said ~~containers~~ container and the walls of said unit pipe element~~(s)~~.

32. (currently amended) [[A]] The method ~~according to~~ of claim 31, ~~characterized in that~~ wherein said main insulating material is a mixture ~~comprising various components which are mixed together and then~~ which is injected in the liquid state into ~~the various~~ compartments

defined by said two successive leaktight partitions and said insulating material becomes transformed into a gel by at least one of its said components cross-linking.

33. (currently amended) A method of thermally insulating at least one undersea pipe, the method ~~being characterized in that~~ comprising the steps of:

manufacturing unit thermally insulating devices according to claim 30 ~~are made~~; and

~~then assembled~~ assembling said unit thermally insulating devices together end to end.